

years following the war—so much so that I consider that sambar now number only about 25% of their pre-war numbers.

HONNAMETTI ESTATE,
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VIA MYSORE,
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7. BIRD MIGRATION ACROSS THE HIMALAYAS

Do migrating birds systematically follow the line of least resistance, i.e., go over the lowest passes and thence follow the course of the nearest river, or do they take the shortest route and risk the rigorous and rarified atmosphere of high altitudes?

This is a subject for careful and prolonged research over a vast amount of country, but if the snippets from individual experiences of men who have lived half a century in and around the Himalayas, will serve any purpose, I gladly give my opinion, backed by few notes and largely from memory—for what it is worth.

I would most definitely say that both routes are followed, and as many migrants, if not more, go over the higher passes and mountain ranges, as follow the courses of rivers.

For many years in autumn I watched and heard skein after skein of geese, (Bar-heads—*Anser indicus*) flying over the Seoj plateau near Bhadarwa in Kashmir State. They obviously came from the great Tibetan lakes—Pangong, and perhaps the Tso Morari, right over the Chamba Lahoul Ranges flying at perhaps 15,000-17,000 ft., and dropped down to the Chenab and Tawi waters between Akhnur and Jammu. Their passage over my camp at Seoj was usually after sundown, both in the spring on their upward journey and in the autumn when they came down. The latter, I noticed, was a little later, about 9 or 10 p.m. which probably meant the distance between Seoj and the Indian plains was much less than that between Seoj and the lakes whence they came.

Had they been at all worried by altitudes what would have been easier for them than to drop down into the Chenab watershed and follow the course of that river, or into the Ravi River near Chamba? A very much longer journey, but indeed the easiest of the lot as regards height, would have been down the Indus where it would have only been necessary to cross one range of mountains, the Kailash Range. But the birds obviously preferred the shorter route, even though it meant the crossing of four mountain ranges and passes of 15,000 ft. and over, before they could reach their winter quarters in the plains of the Punjab. This migration route I was familiar with because Seoj was my favourite shooting ground, and I spent a night or two there, two or three times a month, over a period of about 11 years.

On one occasion I was camped on a pass known as Bhal Pudhree, in the Chamba State, and not more than 25 miles or so from Seoj. I was after Kashmir stag, of which there were not a few in this part of the country. It was, I think, the end of February with a brilliant full moon. I was aroused from my sleep by the most infernal din I had ever known geese to make. I went out of my tent and

looked up to see not one but a dozen or more skeins flying in echelon, across a clear sky. As far as I could judge they were flying a couple of thousand feet above me and heading straight for the Pangong Lakes. The time was about 11 p.m. and I went back to bed again. My alarm woke me at 4 a.m. and synchronized almost perfectly with the din made by the geese in the earlier part of the night.

The moon was fast getting behind a high peak as I looked out, to find to my amazement the geese coming back again. What did this portend? I soon forgot all about the birds as my shikari and I took my rifle and shotgun and proceeded to the haunts of the deer where we had seen their tracks the day before.

The going was frightful. Three feet deep snow, with the top crust hard and a few inches below surface soft powder, into which one sank right up to the thighs and the crunch, crunch of the breaking crust audible to everything within several hundred yards. This was hopeless so we gave it up and decided to wait till the sun came up and did something about melting that top crust. I put on my poshteen and long Gilgit boots, got into my flea-bag and prepared to have another 2 hours sleep, with the alarm set for 7 o'clock. A second *chota-hazri* was most welcome, also the information that the sky was absolutely clear and the sun should soon be over the top of the mountains. As I sipped my tea I again heard the *honk honk honk* of geese and it sounded almost on top of my tent. I was out in a second and there were two separate skeins heading away from my tent, rising steadily as they went apparently straight for the plains. They were obviously agitated and frequently breaking formation and carrying on a sort of desultory conversation in a higher key than the usual honk. I watched them for a little time as my thoughts went back to a similar occasion, some years previously when I witnessed the most amazing spectacle of skeins of geese being broken up by a pair of golden eagles, and thereafter of putting up odd lots of one to half a dozen, in a dense spruce forest.

Here at least were two memorable days and nights I shall never forget, when literally many thousands of geese were winging their way over 10,000 to 11,000 ft. passes with many higher ranges to come.

The greatest altitude I have ever seen birds flying at, always excluding choughs, l ammergeiers, mountain finches and griffon vultures which might be found most of the summer at well over 15,000 ft., was a small flock of pure white birds. It was in May and I was at an altitude of about 12,000 to 13,000 ft. when I saw what I first took to be some feathers floating in the clear air. My glasses however, revealed what I took to be the great Siberian Crane (*Grus leucogeranus*). This seemed a bit late for them to be leaving India on migration, but the birds were certainly bigger than spoonbills with a much more slow and leisurely flap, though for the most part they flew on steady outstretched pinions. They must have been quite 2,500 to 3,000 ft. above me. I lost sight of them as they approached the Spiti range beyond. I was at the time some 20 miles from Rampur (Bashahr State), up the Ganwi Gad and the River Sutlej straight below me not 5 miles away as the crow flies.

The Common Crane (*Grus grus*) I have seen over and over again leave the Kangra swamps fly right over my house in Dharmasala and go over the Dhoula Dhar at 14,000 ft. in small lots varying from one pair to a dozen birds. This migration, perhaps only a local one, took place invariably in the middle of May.

I have watched eagles on migration on two occasions. Where they crossed over into the Kangra District I do not know, but I imagine over the Humpta Pass into Kulu, as one of the flights I saw was above Naggar, in Kulu, and the other over the Mandi State hills near Jathingri. On both occasions all the birds flew in single file, one behind the other; sometimes close to each other, or followed by long gaps of a minute or two. All the birds were young Imperials in the lined plumage, and strangely enough all flew with wings half flexed and each passed over practically the same ground, to within a few feet, as the one before it. Not one more than just turned its head as it went passed, to look at a dead chikor I threw out, and none took any notice of a sparrowhawk sitting on a rock devouring a dead chikor. They were just not feeding.

I have frequently seen duck (species unidentified) flying at a great height obviously following the course of a river very far below but not going down to it.

From my limited experience I should say as many birds fly high over the mountains as keep to the courses of rivers. With larger birds such as geese, cranes, spoonbills, etc. I would say by far the most go straight over the ranges, and thus take the shortest route. To go along the course of any river would double and treble the distance for no advantage. Besides there are very few places on the way where a big gaggle of geese, for instance, could find sufficient space to rest or feed until they reach the plains of India, so it would be infinitely better for them to get there by the shortest route.

Does rarified atmosphere worry them at all? I do not know, but very obviously they do not seem to be affected one way or the other at 14,000 to 15,000 ft. and an extra thousand or so would take them over almost any pass in the Himalaya. I agree with you, however, that many more birds than we know of, must cross the passes at much higher levels than they need and I am pretty certain in my own mind that a far larger number take the direct route *across* the mountain ranges than those which follow the courses of rivers, and thus run the risk of being hemmed in on both sides by mountains, and at a considerable disadvantage from the attacks of birds of prey.

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8. BIRDS NESTING ON TELEGRAPH WIRES

With reference to Miscellaneous Note No. 10 in Vol. 50, No. 3, during 1943 and 1944 when travelling between Gauhati and Manipur Road on the Assam Railway several colonies of Bayas (*Ploceus philippinus*) were observed nesting on the telegraph wires along the railway. They